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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/773,404	02/09/2004	Harukazu Miyamoto	ASAM.0108	6600

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EXAMINER

BIBBINS, LATANYA

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2627

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/773,404	Applicant(s) MIYAMOTO ET AL.	
	Examiner LaTanya Bibbins	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 15, 16 and 19-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 15, 16 and 19-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. In the remarks filed on March 6, 2009, Applicant amended claims 1, 15, 16, 19 and 20 and submitted arguments for allowability of pending claims 1-6, 15, 16 and 19-26.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 6, 2009 has been entered.

3. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Response to Arguments

4. Applicant's arguments filed March 6, 2009 have been fully considered but they are not persuasive.

Applicant argues that the "maximum writing speed" and the "minimum writing speed" disclosed by the primary reference, Lee, differs from the claimed "maximum linear velocity" and "minimum linear velocity" defined according to the recording medium. Applicant further argues that the secondary reference, Kobayashi, merely shows "a track number of a track in each zone is recorded on the disk, and the data including the maximum speed and the minimum speed of the track is read from the table stored in a ROM referring to the track number" and fails to make up for the deficiencies of Lee.

In response to Applicants argument regarding Lee's disclosure of "writing speed" versus the claimed "linear velocity," Examiner respectfully disagrees.

Reading and writing of optical disks occurs with either a constant linear velocity (CLV) constant angular velocity (CAV) or a combination of the two. As is well known by a person of ordinary skill in the art and as discussed in Applicants disclosure, in the CLV recording method the linear velocity is kept constant while the angular velocity is adjusted. In the CAV recording method, the angular velocity is kept constant while the linear velocity is adjusted. Industry standard dictates a linear velocity of approximately 1.4 m/s for CD's and approximately 3.49 m/s for DVD's and is termed 1x. Multiples of these values are referred to as 2x, 4x, etc., (i.e. the 2x speed, 4x speed and 8x speed cited on page 8 of Applicants arguments). Therefore the "maximum writing speed" and

"minimum writing speed" disclosed by Lee is in fact equivalent to the claimed "maximum linear velocity" and "minimum linear velocity." Additionally, in paragraph [0033], Lee discloses that the speeds are predetermined when the disc is designed and are stored in the control data zone along with other basic disc information. As such, the speeds disclosed by Lee are defined according to the recording medium as claimed.

Further, the primary reference, Lee, discloses storing a maximum and minimum linear velocity on a predetermined location of the storage medium while the secondary reference, Kobayashi introduces the maximum and minimum linear velocities of multiple locations of the medium. Therefore, as stated in the previous office, the obvious combination of Lee and Kobayashi disclose the claimed limitations.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 1-6, 15, 16, 19-21, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US PGPub Number 2004/0004921 A1) and further in view of Kobayashi et al. (US Patent Number 5,828,639).**

Regarding claim 1, Lee discloses a disk-shaped information recording medium on which a user data area and a control data area are formed, and to which information is recorded or from which recorded information is produced by irradiation with an energy

Art Unit: 2627

beam moving on/along a track relative to said medium (see paragraphs [0032]), wherein data concerning a maximum linear velocity at the first location ($V1_{max}$) and a minimum linear velocity at the first location ($V1_{min}$) that are defined according to the recording medium are recorded at a predetermined area of the disk-shaped information recording medium (see the discussion in paragraph [0033] regarding the control data zone and the discussion in paragraph [0048]).

Lee, however, fails to teach a disk-shaped information recording medium with a second location wherein data concerning a maximum linear velocity at the second location ($V2_{max}$) and a minimum linear velocity at the second location ($V2_{min}$) that are defined according to the recording medium are recorded at a predetermined area of the disk-shaped information recording medium. Lee also fails to teach that a first location is in an innermost area of the user data area and a second location is in an outermost area of the user data area.

Kobayashi, on the other hand, teaches a disk-shaped information recording medium (Figure 17 element 1) wherein a first location is in an innermost area of the user data area and a second location is in an outermost area of the user data area (Figure 18 and Figures 19-22 zone 0 and zone 92 respectively), and a maximum linear velocity at the second location ($V2_{max}$) and a minimum linear velocity at the second location ($V2_{min}$) are recorded at a predetermined area of the disk-shaped information recording medium (see Figures 19 row 1 column 10, corresponding to zone 0, and Figure 22 row 15 column 10, corresponding to zone 92).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the optical disk with a plurality of zones as taught by Kobayashi with the optical disc taught by Lee. One of ordinary skill in the art at the time the invention was made would have been motivated to combine the teachings in order to produce an optical disc with increased capacity (see Kobayashi column 10 lines 19-21).

The combination of Lee and Kobayashi further disclose a maximum linear velocity at the second location (V_{2max}) and a minimum linear velocity at the second location (V_{2min}) that are defined according to the recording medium (again see Kobayashi Figures 19 row 1 column 10, corresponding to zone 0, and Figure 22 row 15 column 10, corresponding to zone 92 and the control data zone described in paragraph [0033] of Lee which discusses recording a prescribed recording speed, which is predetermined when the disc is designed, being stored in the control data zone).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate V_{2max} and V_{2min} into the control data zone. One of ordinary skill in the art at the time the invention was made would have been motivated to combine the teachings in order to record data on the disc at an optimal speed considering the prescribed recording speed recorded on the disc.

Regarding claim 2, Lee teaches a disk-shaped information recording medium wherein said predetermined area lies in a control data zone in which data concerning said medium are recorded (see the discussion of the control data zone in paragraph

[0033] and the description of the reserved regions 30c-5 and 30c-6 in paragraph [0035]).

Regarding claim 3, Lee fails to teach a disk-shaped information recording medium wherein at least one of undermentioned conditions is satisfied: $r_1 < r_2$, and $V_{1\max} < V_{2\max}$ or $V_{1\min} < V_{2\min}$ where r_1 represents a radial distance of said first location from a center of said medium and r_2 represents a radial distance of said second location from said center of said medium. Kobayashi, however, teaches a disk-shaped information recording medium wherein at least one of undermentioned conditions is satisfied: $r_1 < r_2$ (see Figure 19 rows 1 and 2, columns 1 and 2), and $V_{1\max} < V_{2\max}$ or $V_{1\min} < V_{2\min}$ (Figure 19 rows 1 and 2, columns 9 and 10) where r_1 represents a radial distance of said first location from a center of said medium and r_2 represents a radial distance of said second location from said center of said medium.

Regarding claim 4, Lee fails to teach a disk-shaped information recording medium wherein $r_1 < r_2$ and that $V_{1\min}/r_1 < V_{2\max}/r_2$ are satisfied. Kobayashi, however, teaches an information recording medium wherein conditions that $r_1 < r_2$ and that $V_{1\min}/r_1 < V_{2\max}/r_2$ are satisfied, where r_1 represents a radial distance of said first location from a center of said medium and r_2 represents a radial distance of said second location from said center of said medium (see Figure 19 rows 1 and 2, columns 1, 2, 9, and 10).

Regarding claim 5, Lee and Kobayashi fail to teach a disk-shaped information recording medium wherein condition that $V_{1\max} < V_{2\min}$ is additionally satisfied. It would have been obvious to one of ordinary skill in the art at the time the invention was

made to modify $V1_{max}$ such that it is less than $V2_{min}$. One of ordinary skill in the art at the time the invention was made would have been motivated to modify the velocities in order to produce an information recording medium with data zones with distinct minimum and maximum velocities which do not overlap.

Regarding claim 6, Lee teaches a disk-shaped information recording medium wherein at least some of recording/reproducing conditions corresponding to said maximum linear velocities (V_{max}) and said minimum linear velocities (V_{min}) are recorded at said predetermined location (see Lee paragraph [0048]). Lee fails to teach that the maximum and minimum velocities correspond to said first and second locations. Kobayashi, on the other hand, teaches a disc with maximum and minimum velocities corresponding to said first and second locations in Figure 19 rows 1 and 2.

Claims 15 and 16 are respectively drawn to the information recording method and the information reproducing method using the corresponding apparatus claimed in claim 1. Claims 15 and 16 additionally recite reading said data prior to recording operation of information recorded in the user data area which Lee discloses in paragraph [0020]). Therefore method claims 15 and 16 correspond to apparatus claim 1 and are rejected for the same reasons of obviousness as used above.

Regarding claims 19 and 20, Kobayashi further discloses a an information recording method and an information reproducing method wherein a predetermined control mode of the disk-shaped information recording medium includes a recording condition for the disk-shaped information recording medium with a predetermined

performance (see the discussion in column 11 lines 3-36 and the discussion in column 9 lines 44-48).

Regarding claims 21 and 24, Kobayashi further discloses a an information recording method and an information reproducing method wherein a said relative speed is controlled by one of a control method selected from a group consisting of a constant angular velocity (CAV) control with a rotation speed (rpm) being constant, a constant linear velocity (CLV) control with a linear velocity being constant and a combination of said constant angular velocity (CAV) control and said constant linear velocity (CLV) control (column 9 lines 44-48).

7. Claims 22 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US PGPub Number 2004/0004921 A1) and Kobayashi et al. (US Patent Number 5,828,639), as applied to claims 15 and 16 above, and further in view of Chen (US PGPub Number 2003/0123352 A1).

Regarding claims 22 and 25, Lee and Kobayashi teach an information recording method and an information reproducing method but fail to teach that linear velocities at other locations than said first and second locations are determined through a linear interpolation. Chen, on the other hand teaches wherein the linear velocities at other locations than said first and second locations are determined through a linear interpolation between said minimum linear velocity (V1min) at said first location and said minimum linear velocity (V2min) at said second location and between said maximum

linear velocity ($V1_{max}$) at said first location and said maximum linear velocity ($V2_{max}$) at said second location (see paragraph [0046] and Figure 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of Lee and Kobayashi with that of Chen. In addition to utilizing the interpolation method to quickly and accurately determine the velocity, one of ordinary skill in the art at the time the invention was made would have been motivated to combine the teachings in order to “quickly and accurately determine the optimum writing power” (Chen paragraph [0049]).

8. Claims 23 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US PGPub Number 2004/0004921 A1) and Kobayashi et al. (US Patent Number 5,828,639), as applied to claims 15 and 16 above, and further in view of Mizuno et al. (US Patent Number 6,996,052 B1).

Regarding claim s 23 and 26, Lee and Kobayashi teach an information recording method and an information reproducing method wherein a constant angular velocity (CAV) control is adopted for controlling a rotation (Kobayashi column 9 lines 44-48), but fail to specifically teach that the information recording medium includes a reflective layer, thickness of which is gradually decreased from a radially inner side of said medium toward a radially outer side of said medium. Mizuno, however teaches an information recording medium wherein said information recording medium includes a reflective layer, thickness of which is gradually decreased from a radially inner side of said medium toward a radially outer side of said medium (column 34 lines 10-13), and

wherein a constant angular velocity (CAV) control is adopted for controlling a rotation of said medium (column 33 lines 48-54).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of Lee and Kobayashi with the information recording medium of Mizuno. One of ordinary skill in the art at the time the invention was made would have been motivated to combine the teachings in order to improve the quality of the amorphous marks during recording (see the discussion in Mizuno column 33 lines 64-67 and column 34 lines 1-9).

Conclusion

9. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LaTanya Bibbins whose telephone number is (571)270-

Art Unit: 2627

1125. The examiner can normally be reached on Monday through Friday 7:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571 272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LaTanya Bibbins/
Examiner, Art Unit 2627

/Wayne Young/
Supervisory Patent Examiner, Art Unit 2627